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| EXAMINER |
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LEROUX, ETIENNE PIERRE

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| ART UNIT | PAPER NUMBER |
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2161

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/596,796

Applicant(s)

TENNICAN ET AL.

Examiner

Etienne P LeRoux

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claims Status

Claims 1-27 are pending. Claims 1-27 are rejected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 11-14, 17 and 19-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 5,752,244 issued to Rose et al (hereafter Rose) in view of US Pat No 6,192,370 issued to Primsch (hereafter Primsch).

Claims 1 and 21-26:

Rose discloses:

(a) storing each data object in a data store, each data object in the data store being separately and in parallel referenced in each of the plurality of data structures [Fig 1, 12]

(b) in response to a request for one data object, automatically determining one of the plurality of data structures best suited to retrieve the one data object and employing the determined data structure to locate and retrieve one data object from the data store [Fig 2, 46, 48 and Fig 3, 92]

(c) in response to a request for a plurality of related data objects, automatically determining another one of the plurality of data structures best suited to retrieve the plurality of related data objects and employing the determined other one of the plurality of data structures to locate and retrieve the plurality of related data objects from the data store [Fig 3, 80, 82].

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Rose discloses the essential elements of the claimed invention as noted above but does not disclose automatically deleting each reference to each deleted data object in the plurality of data structure types such that each subsequent request for each deleted data object will be unsuccessful. Primsch discloses automatically deleting each reference to each deleted data object in the plurality of data structure types such that each subsequent request for each deleted data object will be unsuccessful [col 10, lines 55-60]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rose to include automatically deleting each reference to each deleted data object in the plurality of data structure types such that each subsequent request for each deleted data object will be unsuccessful as taught by Primsch for the purpose of deleting obsolete data. The ordinarily skilled artisan would have been motivated to improve the invention of Rose per the above such that space can be made available for new data [col 10, lines 55-60].

Claim 3:

The combination of Rose and Primsch discloses the elements of claim 1 as noted above and furthermore, Rose discloses wherein the plurality of data objects have at least one related characteristic i.e., type [col 1, line 66, image, scanned photographs or computer generated images].

Claims 4, 19 and 27:

The combination of Rose and Primsch discloses the elements of claim 1 as noted above and furthermore, Rose discloses a List data structure type [video, col 1, line 67].¹

Claim 11:

The combination of Rose and Primsch the elements of claim 1 as noted above and furthermore, Rose discloses a combination of relational and object oriented database [col 25, lines 15-20].

Claims 14 and 17:

¹ Applicant's specification on page 1 designates streaming video to be typical of a List data structure]

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- (a) enabling a server [Fig 1, 10] to store each data object in a data store, each data object in the data store being separately and in parallel referenced in each of the plurality of data structures [Fig 1, 12]
- (b) when one data object is requested by a client, enabling the server to automatically choose one of the plurality of data structure types best suited to fulfill the request and retrieve the one data object for the client [Fig 2, 46, 48 and Fig 3, 92].
- (c) when a plurality of related data objects are requested by the client, enabling the server to automatically choose another one of the plurality of data structure types best suited to locate and retrieve the plurality of related data objects for the client [Fig 3, 80, 82].

Rose discloses the essential elements of the claimed invention as noted above but fails to disclose in response to a request to delete at least one data object from the client, enabling the server to automatically delete each reference to each deleted data object in the plurality of data structure types such that each subsequent request for each deleted data object will be successful. Primsch discloses in response to a request to delete at least one data object from the client, enabling the server to automatically delete each reference to each deleted data object in the plurality of data structure types such that each subsequent request for each deleted data object will be successful [col 10, lines 55-60]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Rose to include in response to a request to delete at least one data object from the client, enabling the server to automatically delete each reference to each deleted data object in the plurality of data structure types such that each subsequent request for each deleted data object will be successful as taught by Primsch for the purpose of deleting obsolete data. The ordinarily skilled artisan would have been motivated to improve the invention of Rose per the above such that space can be made available for new data [col 10, lines 55-60].

Claim 20:

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The combination of Rose and Primsch discloses the elements of claim 17 as noted above. The above combination of references fails to disclose a router, client cache, firewall and another server. Official Notice that a router, client cache, firewall and another server are well-known and expected in the art. The ordinarily skilled artisan would have been motivated to modify the above combination of references to include a router, client cache, firewall and another server for the purpose of providing secure and fast communications over the Internet.

Claims 2, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Rose and Primsch and further in view of US Pat No 5,873,075 issued to Cochrane (hereafter Cochrane).

Claim 2:

The combination of Rose and Primsch discloses the elements of claim 1 as noted above but does not disclose associating a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures. Cochrane discloses associating a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures [col 4, lines 1-10]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above combination of references to include associating a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structures as taught by Cochrane for the purpose of quickly providing related objects. The ordinary skilled artisan would have been motivated to modify the above combination of references such that a relationship is established between two tables [col 4, lines 1-10]

Claim 15:

The combination of Rose and Primsch discloses the elements of claim 14 as noted but does not disclose enabling the server to associate a parent object with each data object, the parent object

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identifying each reference for the associated data object in the plurality of data structure types, and when at least one data object is deleted, enabling the server to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structure types such that each reference to the deleted data object is deleted. Cochrane discloses enabling the server to associate a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structure types, and when at least one data object is deleted, enabling the server to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structure types such that each reference to the deleted data object is deleted [col 4, lines 1-10]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above combination of references to include enabling the server to associate a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structure types, and when at least one data object is deleted, enabling the server to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structure types such that each reference to the deleted data object is deleted as taught by Cochrane for the purpose of quickly providing related objects. The ordinary skilled artisan would have been motivated to modify the above combination of references such that a relationship is established between two tables [col 4, lines 1-10].

Claim 18:

The combination of Rose and Primsch discloses the elements of claim 17 as noted but does not disclose enabling the server to associate a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structure types, and when at least one data object is deleted, enabling the server to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structure types such that each reference to the deleted data object is deleted. Cochrane discloses enabling the server

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to associate a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structure types, and when at least one data object is deleted, enabling the server to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structure types such that each reference to the deleted data object is deleted [col 4, lines 1-10]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above combination of references to include enabling the server to associate a parent object with each data object, the parent object identifying each reference for the associated data object in the plurality of data structure types, and when at least one data object is deleted, enabling the server to employ each parent object associated with each deleted data object to identify each reference for the deleted data object in the plurality of data structure types such that each reference to the deleted data object is deleted as taught by Cochrane for the purpose of quickly providing related objects. The ordinary skilled artisan would have been motivated to modify the above combination of references such that a relationship is established between two tables [col 4, lines 1-10].

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Loaiza and Cochrane in view of US Pat No 5,787,452 issued to McKenna (hereafter McKenna).

Claim 5:

The combination of Rose and Primsch discloses the elements of claims 1 and 4 as above but does not disclose wherein the data object is a collector object that is associated with a member object that identifies one or more other data objects that are referenced in a sub-tree below a reference to the requested collector object in the Trie data structure, the member object being employed to reference and retrieve each other data object when the collector object is retrieved. McKenna discloses wherein the data object is a collector object that is associated with a member object that identifies one or more other data objects that are referenced in a sub-tree below a reference to the requested collector object in the Trie data

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structure, the member object being employed to reference and retrieve each other data object when the collector object is retrieved [col 5, lines 17-37]. It would have been obvious to one of ordinary skill in the art to modify the combination of references to include wherein the data object is a collector object that is associated with a member object that identifies one or more other data objects that are referenced in a sub-tree below a reference to the requested collector object in the Trie data structure, the member object being employed to reference and retrieve each other data object when the collector object is retrieved as taught by McKenna for the purpose of providing a well-accepted mechanism for storing a sparse data set in a structure which only contains the information needed, and at the same time comprises information (i.e., pointers) about information which does not fit within the specific range of characters (i.e., trie entries). Each trie structure stores attribute information which is required. Sub-attribute structures can be shared or omitted, as needed, to preserve systems resources when processing. In the event that an attribute structure is not represented, the system employs the corresponding default attribute--that is, a default attribute contained within (or referenced by) the base attribute structure [col 5, lines 17-37].

Claim 6:

The combination of Rose, Primsch and McKenna discloses the elements of claims 1, 4 and 5 as noted above and furthermore, McKenna discloses automatically enabling the member object to identify a new data object that is added to the sub-tree below the reference to the collector object [col 5, lines 30-35].

Claims 7-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Rose and Primsch and further in view of US Pat No 6,175,835 issued to Shadmon (hereafter Shadmon).

Claim 7:

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The combination of Rose and Primsch discloses the elements of claims 1 and 4 as noted above but does not disclose identifying a key in the request for the data object, dividing the key into segments and employing each segment to search the Trie data structure and locate the requested data object. Shadmon discloses identifying a key in the request for the data object, dividing the key into segments and employing each segment to search the Trie data structure and locate the requested data object [abstract]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above combination of references to include identifying a key in the request for the data object, dividing the key into segments and employing each segment to search the Trie data structure and locate the requested data object as taught by Shadmon for the purpose of searching a database comprising an unbalanced structure [abstract].

Claim 8:

The combination of Rose, Primsch and Shadmon discloses the elements of claims 1, 4 and 7 as noted above and furthermore, Shadmon discloses an IP address [Fig 17A]

Claim 9:

The combination of Rose, Primsch and Shadmon discloses the elements of claims 1, 4 and 7 as noted above and furthermore, Shadmon discloses wherein the key represents a port [abstract].

Claim 10:

The combination of Rose, Primsch and Shadmon discloses the elements of claims 1, 4 and 7 as noted above and furthermore, examiner notes that in Shadmon wherein each segment is represented by at least one bit is inherent.

Claim 16:

The combination of Rose and Primsch discloses the elements of claim 14 as noted above but does not disclose enabling the server to identify a key in the request for the data object, enabling the server to divide the key into segments and enabling the server to employ each segment to search the trie data

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structure and locate the requested data object. Shadmon discloses enabling the server to identify a key in the request for the data object, enabling the server to divide the key into segments and enabling the server to employ each segment to search the trie data structure and locate the requested data object [abstract]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above combination of references to include enabling the server to identify a key in the request for the data object, enabling the server to divide the key into segments and enabling the server to employ each segment to search the trie data structure and locate the requested data object as taught by Shadmon for the purpose of searching a database comprising an unbalanced structure [abstract].

Response to Arguments

Applicant's arguments submitted 3/1/2005 have been considered but are moot in view of supra new ground(s) of rejection which are made in response to applicant's claim amendments.

Conclusion

Applicant's submission of the requirements for the joint research agreement prior art exclusion under 35 U.S.C. 103(c) on 3/1/2005, prompted the new ground(s) of rejection under 37 CFR 1.109(b) presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.02(l)(3). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no

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event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne P LeRoux whose telephone number is (571) 272-4022. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on (571) 272-4023. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Etienne LeRoux

5/10/2005



**MOHAMMAD ALI
PRIMARY EXAMINER**